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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _26 November 2003_.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-37_ is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) _1-37_ is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All   b)☐ Some * c)☐ None of:
    1.☐ Certified copies of the priority documents have been received.
    2.☐ Certified copies of the priority documents have been received in Application No. _____.
    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _6/22/2006; 11/26/2003_.
4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2.   Claims 1-8, 16, 17, 18-22, 30, 31, 32-35, and 37 are rejected under 35 U.S.C. 102(e) as

being anticipated by Linder et al. (US Patent No. 7,319,545)

Regarding claim 1, Linder'545 teaches a method comprising: receiving or taking a plurality of

measurements (i.e. Step 72, Fig. 5. scan printed target) of a plurality of near-neutral patches for

different lightness levels (i.e. large number of nearly neutral patches around the a*=b*=0 axis,

column 4, lines 37-38) printed by an imaging system (i.e. Step 70, Fig. 5) using a first plurality

of sets of color values (step wedges in the CMYK colorants, column 4, line 35) of the imaging

system's color space (the color space required by the printer, column 3, lines 45-47), derived

based on a second plurality of sets of color values (desired aim values, column 4, lines 55-58) of

a profile connection space (PCS) (i.e. These desired L*a*b* values are stored in the image

processing module, as desired aim values representing the calibration test target along with the

instructions for printing the test target, column 4, lines 55-58) and in accordance with a print

table of a color profile of the imaging system (tone reproduction curves, column 7, lines 11-12)

mapping color value sets from the PCS to color value sets in the imaging system's color space

(input values from the scanner are converted to the CMYK values needed by the output printer unit, column 7, lines 11-12), the second plurality of sets of color values defining the near-neutral patches in the PCS (i.e. These desired L*a*b* values are stored in the image processing module, as desired aim values representing the calibration test target along with the instructions for printing the test target, column 4, lines 55-58) ; and computing a third plurality of sets of color values (output tone curve, column 6, lines 50-51) for the imaging system to output a corresponding plurality of neutral gray outputs at the different lightness levels (L* vs. digital value), by interpolation (the generated correction is made in the form of TRC and Halftone Conversion LUT, Step 78, Fig. 5. in addition, such a table may be combined with interpolation methods, column 5, line 57), based at least in part on said received or taken measurements (i.e. Step 76, compare measured L*a*b* values to aim values, Fig. 5).

Regarding claim 2, Linder'545 teaches wherein the method comprises taking the measurements in a manner that directly provides fourth color values of the printed near-neutral patches in the PCS (Measure target with Spectrophotometer, Fig. 4).

Regarding claim 3, Linder'545 teaches, wherein the method comprises taking the measurements in a manner that does not directly provide fourth color values of the printed near-neutral patches in the PCS (Step 72, Scan Printed Target, Fig. 5), and converting the measurements taken into the fourth color values in the PCS (Step 74, Use Scanner Profile to Convert Printed Target, RGB to Lab, Fig. 5).

Regarding claim 4, Linder'545 teaches wherein the method comprises taking the measurements

employing a selected one of a colorimeter and a spectrophotometer instead (spectrophotometer,

Fig. 4).

Regarding claim 5, Linder'545 teaches wherein the method is practiced on the imaging system,

and further comprises printing the near-neutral patches using the first sets of color values (step

wedges in the CMYK colorants, column 4, line 35).

Regarding claim 6, Linder'545 teaches, wherein the method further comprises computing the

first sets of color values based on the second sets of color values (desired aim values, column 4,

lines 55-58) of the profile connection space (PCS) defining the near-neutral patches in the PCS,

in accordance with the print table of the color profile of the imaging system (i.e. These desired

L*a*b* values are stored in the image processing module, as desired aim values representing the

calibration test target along with the instructions for printing the test target, column 4, lines 55-

58).

Regarding claim 7, Linder'545 teaches, wherein the method further comprises defining the near-

neutral patches in the PCS (i.e. These desired L*a*b* values are stored in the image processing

module, as desired aim values representing the calibration test target along with the instructions

for printing the test target, column 4, lines 55-58).

Regarding claim 8, Linder'545 teaches, wherein the method further comprises defining neutral aim in a device-independent color space. (i.e. These desired L*a*b* values are stored in the image processing module, as desired aim values representing the calibration test target along with the instructions for printing the test target, column 4, lines 55-58)

Regarding claim 16, Linder'545 teaches wherein the method further comprises adjusting the print table of the color profile of the imaging system in view of the computed third plurality of sets of color values (new TRC set can be used in place of the previously stored set, column 7, line 28).

Regarding claim 17, Linder'545 teaches wherein the PCS is CIE's L*a*b* color space (Fig. 5, Step 76).

Regarding claim 18, Linder'545 teaches an apparatus comprising: storage medium having stored therein a plurality of programming instructions designed to enable the apparatus to receive or take a plurality of measurements (i.e. Step 72, Fig. 5. scan printed target) of a plurality of near-neutral patches for different lightness levels (i.e. large number of nearly neutral patches around the a*=b*=0 axis, column 4, lines 37-38) printed by an imaging system (i.e. Step 70, Fig. 5) using a first plurality of sets of color values (step wedges in the CMYK colorants, column 4, line 35) of the imaging system's color space (the color space required by the printer, column 3, lines 45-47), derived based on a second plurality of sets of color values (desired aim values, column 4, lines 55-58) of a profile connection space (PCS) (i.e. These desired L*a*b* values are stored in

the image processing module, as desired aim values representing the calibration test target along with the instructions for printing the test target, column 4, lines 55-58) and in accordance with a print table of a color profile of the imaging system (tone reproduction curves, column 7, lines 11-12) mapping color value sets from the PCS to color value sets in the imaging system's color space (input values from the scanner are converted to the CMYK values needed by the output printer unit, column 7, lines 11-12), the second plurality of sets of color values defining the near-neutral patches in the PCS (i.e. These desired L*a*b* values are stored in the image processing module, as desired aim values representing the calibration test target along with the instructions for printing the test target, column 4, lines 55-58) ; and computing a third plurality of sets of color values (output tone curve, column 6, lines 50-51) for the imaging system to output a corresponding plurality of neutral gray outputs at the different lightness levels (L* vs. digital value), by interpolation (the generated correction is made in the form of TRC and Halftone Conversion LUT, Step 78, Fig. 5. in addition, such a table may be combined with interpolation methods, column 5, line 57), based at least in part on said received or taken measurements (i.e. Step 76, compare measured L*a*b* values to aim values, Fig. 5).

Regarding claim 19, Linder'545 teaches wherein the apparatus further comprises a selected one of a colorimeter and a spectrophotometer (spectrophotometer, Fig. 4); and the programming instructions are designed to enable the apparatus to take the measurements in a manner that directly provides fourth color values of the printed near-neutral patches in the PCS (Step 56 and 58, in Fig. 4).

Regarding claim 20, Linder'545 teaches wherein the apparatus further comprises a selected one

of a calorimeter and a spectrophotometer (spectrophotometer, Fig. 4); and the programming

instructions are designed to enable the apparatus to take the measurements in a manner that does

not directly provide fourth color values of the printed near-neutral patches in the PCS, and to

convert the measurements taken into the fourth color values in the PCS (Step 74, Fig. 5).

Regarding claim 21, Linder'545 teaches, wherein the apparatus comprises the imaging system,

and the programming instructions are further designed to enable the apparatus to print the near-

neutral patches using the first sets of color values (step wedges in the CMYK colorants, column

4, line 35).

Regarding claim 22, Linder'545 teaches, wherein the programming instructions are

further designed to enable the apparatus to compute the first sets of color values (step wedges in

the CMYK colorants, column 4, line 35) based on the second sets of color values of the profile

connection space (PCS) defining the near-neutral patches in the PCS, in accordance with the

print table of the color profile of the imaging system (i.e. These desired L*a*b* values are stored

in the image processing module, as desired aim values representing the calibration test target

along with the instructions for printing the test target, column 4, lines 55-58).

Regarding claim 30, Linder'545 teaches wherein the programming instructions are further

designed to enable the apparatus to adjust the print table of the color profile of the imaging

system in view of the computed third plurality of sets of color values (new TRC set can be used

in place of the previously stored set, column 7, line 28).

Regarding claim 31, Linder'545 teaches, wherein the PCS is CIE's L*a*b* color space (Fig. 5,

Step 76).

Regarding claim 32, Linder'545 teaches An article of manufacture comprising: a storage

medium; and a plurality of instructions stored in the storage medium, the instructions designed to

enable an apparatus to receive or take a plurality of measurements (i.e. Step 72, Fig. 5. scan

printed target) of a plurality of near-neutral patches for different lightness levels (i.e. large

number of nearly neutral patches around the a*=b*=0 axis, column 4, lines 37-38) printed by an

imaging system (i.e. Step 70, Fig. 5) using a first plurality of sets of color values (step wedges in

the CMYK colorants, column 4, line 35) of the imaging system's color space (the color space

required by the printer, column 3, lines 45-47), derived based on a second plurality of sets of

color values (desired aim values, column 4, lines 55-58) of a profile connection space (PCS) (i.e.

These desired L*a*b* values are stored in the image processing module, as desired aim values

representing the calibration test target along with the instructions for printing the test target,

column 4, lines 55-58) and in accordance with a print table of a color profile of the imaging

system (tone reproduction curves, column 7, lines 11-12) mapping color value sets from the PCS

to color value sets in the imaging system's color space (input values from the scanner are

converted to the CMYK values needed by the output printer unit, column 7, lines 11-12), the

second plurality of sets of color values defining the near-neutral patches in the PCS (i.e. These

desired L*a*b* values are stored in the image processing module, as desired aim values

representing the calibration test target along with the instructions for printing the test target,

column 4, lines 55-58) ; and computing a third plurality of sets of color values (output tone

curve, column 6, lines 50-51) for the imaging system to output a corresponding plurality of

neutral gray outputs at the different lightness levels (L* vs. digital value), by interpolation (the

generated correction is made in the form of TRC and Halftone Conversion LUT, Step 78, Fig. 5.

in addition, such a table may be combined with interpolation methods, column 5, line 57), based

at least in part on said received or taken measurements (i.e. Step 76, compare measured L*a*b*

values to aim values, Fig. 5)..

Regarding claim 33, Linder'545 teaches, wherein the programming instructions are designed to

enable the apparatus to take the measurements (Step 56, Fig. 4).

Regarding claim 34, Linder'545 teaches wherein the programming instructions are designed to

enable the apparatus to print the near-neutral patches using the first plurality of sets of color

values (step wedges in the CMYK colorants, column 4, line 35).

Regarding claim 35, Linder'545 teaches, wherein the programming instructions are further

designed to enable the apparatus to compute the first sets of color values based on the second

sets of color values of the profile connection space (PCS) defining the near-neutral patches in the

PCS, in accordance with the print table of the color profile of the imaging system (i.e. These

desired L*a*b* values are stored in the image processing module, as desired aim values

representing the calibration test target along with the instructions for printing the test target,

column 4, lines 55-58).

Regarding claim 37, Linder'545 teaches, wherein the programming instructions are further

designed to enable the apparatus to adjust the print table of the color profile of the imaging

system in view of the computed third plurality of sets of color values (new TRC set can be used

in place of the previously stored set, column 7, line 28).

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102
of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject
matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art
to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2.   Claims 9-15, 23-29, and 36 rejected under 35 U.S.C. 103(a) as being unpatentable over

Linder et al (US Patent No. 7,319,545) in view of Dalrymple et al. (US Pub. No. 2003/0072016)

Regarding claim 9, Linder'545 fails to teach wherein said computing of the third plurality of sets

of color values by interpolation comprises performing a systematic area analysis at a lightness

level of the PCS to determine an area of the measured near-neutral patch in the lightness level

containing a neutral node of the lightness level, and computing a corresponding set of the third

plurality of sets of color values based at least in part on a weighted average of a fourth plurality

of sets of color values in the imaging system's color space corresponding to plurality of nodes in

the PCS defining the area in the lightness level containing the neutral node of the lightness level.

Dalrymple'016 teaches wherein said computing of the third plurality of sets of color values (final

CMYK signals, paragraph 0085) by interpolation (interpolation process, paragraph 0083)

comprises performing a systematic area analysis (enclosing tetrahedron may be determined,

paragraph 0083) at a lightness level of the PCS to determine an area of the measured near-neutral

patch in the lightness level containing a neutral node of the lightness level (the three edged that

connect white, a primary color, and an adjacent secondary color, to black on it enclosing

tetrahedron, paragraph 83, in addition, Fig. 6), and computing a corresponding set of the third

plurality of sets of color values (final CMYK signals, paragraph 0083) based at least in part on a

weighted average (weighting factors, paragraph 083) of a fourth plurality of sets of color values

in the imaging system's color space (input CMY signals, paragraph 0083) corresponding to

plurality of nodes in the PCS (Points C, S, and P, Fig. 7 and in addition paragraph 0083) defining

the area in the lightness level containing the neutral node of the lightness level (points C, P, and

S for a section through a specific tetrahedron, which section is defined as a function of the input

signal set, paragraph 0083).

Having a system of Linder'545 reference and then given the well-established teaching of

Dalrymple'016 reference, it would have been obvious to one having ordinary skill in the art at

the time the invention was made to modify the system of Linder'545 reference as taught by

Dalrymple'016 reference, since Dalrymple'016 reference suggested achieving optimal output

image quality, paragraph 007.

Regarding claim 10, Linder'545 fails to teach wherein each color component of each set of the fourth plurality of color values are weighted in accordance with an amount of contribution to the area containing the neutral node at the lightness level by an area defined by the neutral node, a corresponding node and at least one other node defining the area in the lightness level containing the neutral node of the lightness level.

Dalrymple'016 teaches, wherein each color component of each set of the fourth plurality of color values (input CMY signals, paragraph 0083) are weighted (weighting factors, paragraph 083) in accordance with an amount of contribution to the area containing the neutral node at the lightness level by an area defined by the neutral node (white, paragraph 0083), a corresponding node (black, paragraph 0083) and at least one other node defining the area in the lightness level containing the neutral node of the lightness level (the three edged that connect white, a primary color, and an adjacent secondary color, to black on it enclosing tetrahedron, paragraph 83, in addition, Fig. 6).

Having a system of Linder'545 reference and then given the well-established teaching of Dalrymple'016 reference, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Linder'545 reference as taught by Dalrymple'016 reference, since Dalrymple'016 reference suggested achieving optimal output image quality, paragraph 007.

Regarding claim 11, Linder'545 fails to teach, wherein the color profile of the imaging system is a RGB profile, and each color component is a selected one of a R, a G and a B color component.

Dalrymple'016 teaches wherein the color profile of the imaging system is a RGB profile, and

each color component is a selected one of a R, a G and a B color component (Fig. 4, notice RGB

inputs).

Having a system of Linder'545 reference and then given the well-established teaching of

Dalrymple'016 reference, it would have been obvious to one having ordinary skill in the art at

the time the invention was made to modify the system of Linder'545 reference as taught by

Dalrymple'016 reference, since Dalrymple'016 reference suggested achieving optimal output

image quality, paragraph 007.

Regarding claim 12, Linder'545 fails to teach wherein the method further comprises adjusting

the corresponding set of the third plurality of sets of color values in view of a weighted average

of measured lightness of the nodes defining the area containing the neutral node at the lightness

level.

Dalrymple'016 teaches, wherein the method further comprises adjusting the corresponding set of

the third plurality of sets of color values (final output CMYK signals) in view of a weighted

average of measured lightness of the nodes (w1 and w2 in formula (5), paragraph 0084) defining

the area containing the neutral node at the lightness level (using the values of C, P, and S from

Fig. 7 and described in paragraph 0083-0084, the final output CMYK signals are obtained using

the weighting factors, paragraph 0085-0086).

Having a system of Linder'545 reference and then given the well-established teaching of

Dalrymple'016 reference, it would have been obvious to one having ordinary skill in the art at

the time the invention was made to modify the system of Linder'545 reference as taught by

Dalrymple'016 reference, since Dalrymple'016 reference suggested achieving optimal output

image quality, paragraph 007.

Regarding claim 13, Linder'545 fails to teach, wherein the measured lightness of each node is

weighted in accordance with an amount of contribution to the area containing the neutral node at

the lightness level by an area defined by the neutral node, the node and at least one other node.

Dalrymple'016 teaches, wherein the measured lightness of each node is weighted in accordance

with an amount of contribution to the area containing the neutral node at the lightness level (the

relative location of the input CMY point within this triangle determines the weighting factors,

Paragraph 0083) by an area defined by the neutral node (C, Fig. 7), the node (Input, Fig. 7) and

at least one other node (P. and S, Fig. 7).

Having a system of Linder'545 reference and then given the well-established teaching of

Dalrymple'016 reference, it would have been obvious to one having ordinary skill in the art at

the time the invention was made to modify the system of Linder'545 reference as taught by

Dalrymple'016 reference, since Dalrymple'016 reference suggested achieving optimal output

image quality, paragraph 007.

Regarding claim 14, Linder'545 fails to teach, wherein said adjustment comprises linearly

interpolating the corresponding set of the third plurality of sets of color values to a darker neutral

gray if the weighted average of the measured lightness of the nodes defining the area containing

the neutral node at the lightness level is greater than the lightness level, and linearly interpolating

the corresponding set of the third plurality of sets of color values to a lighter neutral gray if the

weighted average of the measured lightness of the nodes defining the area containing the neutral node at the lightness level is less than the lightness level.

Dalrymple'016 teaches, wherein said adjustment comprises linearly interpolating the corresponding set of the third plurality of sets of color values (final output CMYK signals by linear interpolation, paragraph 0083) to a darker neutral gray if the weighted average of the measured lightness of the nodes defining the area containing the neutral node at the lightness level is greater than the lightness level (performs interpolation using weighting factors, paragraph 0083 and Fig. 6, where C>M>Y for example), and linearly interpolating the corresponding set of the third plurality of sets of color values (final output CMYK signals by linear interpolation, paragraph 0083) to a lighter neutral gray if the weighted average of the measured lightness of the nodes defining the area containing the neutral node at the lightness level is less than the lightness level (performs interpolation using weighting factors, paragraph 0083 and Fig. 6, where C>Y>M for example).

Having a system of Linder'545 reference and then given the well-established teaching of Dalrymple'016 reference, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Linder'545 reference as taught by Dalrymple'016 reference, since Dalrymple'016 reference suggested achieving optimal output image quality, paragraph 007.

Regarding claim 15, Linder'545 fails to teach wherein the method further comprises repeating said performance of systematic area analyses, said computing of a corresponding set of the third

plurality of sets of color values, and said adjusting of the corresponding set for at least one other lightness level.

Dalrymple'016 teaches, wherein the method further comprises repeating said performance of systematic area analyses, said computing of a corresponding set of the third plurality of sets of color values, and said adjusting of the corresponding set for at least one other lightness level (the method of the invention obtains final output CMYK signals by linear interpolation of the values retrieved from the 3 LUT's. paragraph 0083 It is clear that the example given in the specification was related to a single example and the method would have to be repeated to determine CMYK signals that would be usable by a printer, paragraph 0079).

Having a system of Linder'545 reference and then given the well-established teaching of Dalrymple'016 reference, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Linder'545 reference as taught by Dalrymple'016 reference, since Dalrymple'016 reference suggested achieving optimal output image quality, paragraph 007.

Regarding claim 23, Linder'545 fails to teach, wherein the programming instructions are further designed to enable the apparatus to compute the third plurality of sets of color values by interpolation by performing a systematic area analysis at a lightness level of the PCS to determine an area of the measured near-neutral patch in the lightness level containing a neutral node of the lightness level, and compute a corresponding set of the third plurality of sets of color values based at least in part on a weighted average of a fourth plurality of sets of color values in

the imaging system's color space corresponding to plurality of nodes in the PCS defining the area

in the lightness level containing the neutral node of the lightness level.

Dalrymple'016 teaches computing of the third plurality of sets of color values (final CMYK

signals, paragraph 0085) by interpolation (interpolation process, paragraph 0083) comprises

performing a systematic area analysis (enclosing tetrahedron may be determined, paragraph

0083) at a lightness level of the PCS to determine an area of the measured near-neutral patch in

the lightness level containing a neutral node of the lightness level (the three edged that connect

white, a primary color, and an adjacent secondary color, to black on it enclosing tetrahedron,

paragraph 83, in addition, Fig. 6), and computing a corresponding set of the third plurality of sets

of color values (final CMYK signals, paragraph 0083) based at least in part on a weighted

average (weighting factors, paragraph 083) of a fourth plurality of sets of color values in the

imaging system's color space (input CMY signals, paragraph 0083) corresponding to plurality of

nodes in the PCS (Points C, S, and P, Fig. 7 and in addition paragraph 0083) defining the area in

the lightness level containing the neutral node of the lightness level (points C, P, and S for a

section through a specific tetrahedron, which section is defined as a function of the input signal

set, paragraph 0083).

Having a system of Linder'545 reference and then given the well-established teaching of

Dalrymple'016 reference, it would have been obvious to one having ordinary skill in the art at

the time the invention was made to modify the system of Linder'545 reference as taught by

Dalrymple'016 reference, since Dalrymple'016 reference suggested achieving optimal output

image quality, paragraph 007.

Regarding claim 24, Linder'545 fails to teach, wherein the programming instructions are further

designed to enable the apparatus to weigh each color component of each set of the fourth

plurality of color values in accordance with an amount of contribution to the area containing the

neutral node at the lightness level by an area defined by the neutral node, a corresponding node

and at least one other node defining the area in the lightness level containing the neutral node of

the lightness level.

Dalrymple'016 teaches the apparatus to weigh (weighting factors, paragraph 083) each color

component of each set of the fourth plurality of color values (input CMY signals, paragraph

0083) in accordance with an amount of contribution to the area containing the neutral node at the

lightness level by an area defined by the neutral node (white, paragraph 0083), a corresponding

node (black, paragraph 0083) and at least one other node defining the area in the lightness level

containing the neutral node of the lightness level (the three edged that connect white, a primary

color, and an adjacent secondary color, to black on it enclosing tetrahedron, paragraph 83, in

addition, Fig. 6).

Having a system of Linder'545 reference and then given the well-established teaching of

Dalrymple'016 reference, it would have been obvious to one having ordinary skill in the art at

the time the invention was made to modify the system of Linder'545 reference as taught by

Dalrymple'016 reference, since Dalrymple'016 reference suggested achieving optimal output

image quality, paragraph 007.

Regarding claim 25, Linder'545 fails to teach, wherein the color profile of the imaging system is

a RGB profile, and each color component is a selected one of a R, a G and a B color component.

Dalrymple'016 teaches wherein the color profile of the imaging system is a RGB profile, and

each color component is a selected one of a R, a G and a B color component (Fig. 4, notice RGB

inputs).

Having a system of Linder'545 reference and then given the well-established teaching of

Dalrymple'016 reference, it would have been obvious to one having ordinary skill in the art at

the time the invention was made to modify the system of Linder'545 reference as taught by

Dalrymple'016 reference, since Dalrymple'016 reference suggested achieving optimal output

image quality, paragraph 007.

Regarding claim 26, Linder'545 fails to teach, wherein the programming instructions are

further designed to enable the apparatus to adjust the corresponding set of the third plurality of

sets of color values in view of a weighted average of measured lightness of the nodes defining

the area containing the neutral node at the lightness level.

Dalrymple'016 teaches the programming instructions are further designed to enable the

apparatus to adjust the corresponding set of the third plurality of sets of color values (final output

CMYK signals) in view of a weighted average of measured lightness of the nodes (w1 and w2 in

formula (5), paragraph 0084) defining the area containing the neutral node at the lightness level

(using the values of C, P, and S from Fig. 7 and described in paragraph 0083-0084, the final

output CMYK signals are obtained using the weighting factors, paragraph 0085-0086).

Having a system of Linder'545 reference and then given the well-established teaching of

Dalrymple'016 reference, it would have been obvious to one having ordinary skill in the art at

the time the invention was made to modify the system of Linder'545 reference as taught by

Dalrymple'016 reference, since Dalrymple'016 reference suggested achieving optimal output

image quality, paragraph 007.

Regarding claim 27, Linder'545 fails to teach, wherein the programming instructions are further

designed to enable the apparatus to weigh the measured lightness of each node in accordance

with an amount of contribution to the area containing the neutral node at the lightness level by an

area defined by the neutral node, the node and at least one other node.

Dalrymple'016 teaches wherein the measured lightness of each node is weighted in accordance

with an amount of contribution to the area containing the neutral node at the lightness level (the

relative location of the input CMY point within this triangle determines the weighting factors,

Paragraph 0083) by an area defined by the neutral node (C, Fig. 7), the node (Input, Fig. 7) and

at least one other node (P and S, Fig. 7).

Having a system of Linder'545 reference and then given the well-established teaching of

Dalrymple'016 reference, it would have been obvious to one having ordinary skill in the art at

the time the invention was made to modify the system of Linder'545 reference as taught by

Dalrymple'016 reference, since Dalrymple'016 reference suggested achieving optimal output

image quality, paragraph 007.

Regarding claim 28, Linder'545 fails to teach, wherein the programming instructions are further

designed to enable the apparatus to perform said adjustment by linearly interpolating the

corresponding set of the third plurality of sets of color values to a darker neutral gray if the

weighted average of the measured lightness of the nodes defining the area containing the neutral

node at the lightness level is greater than the lightness level, and linearly interpolating the corresponding set of the third plurality of sets of color values to a lighter neutral gray if the weighted average of the measured lightness of the nodes defining the area containing the neutral node at the lightness level is less than the lightness level.

Dalrymple'016 teaches wherein said adjustment comprises linearly interpolating the corresponding set of the third plurality of sets of color values (final output CMYK signals by linear interpolation, paragraph 0083) to a darker neutral gray if the weighted average of the measured lightness of the nodes defining the area containing the neutral node at the lightness level is greater than the lightness level (performs interpolation using weighting factors, paragraph 0083 and Fig. 6, where C>M>Y for example), and linearly interpolating the corresponding set of the third plurality of sets of color values (final output CMYK signals by linear interpolation, paragraph 0083) to a lighter neutral gray if the weighted average of the measured lightness of the nodes defining the area containing the neutral node at the lightness level is less than the lightness level (performs interpolation using weighting factors, paragraph 0083 and Fig. 6, where C>Y>M for example).

Having a system of Linder'545 reference and then given the well-established teaching of Dalrymple'016 reference, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Linder'545 reference as taught by Dalrymple'016 reference, since Dalrymple'016 reference suggested achieving optimal output image quality, paragraph 007.

Regarding claim 29, Linder'545 fails to teach, wherein the programming instructions are further

designed to enable the apparatus to repeat for at least one other lightness level, said performance

of systematic area analyses, said computing of a corresponding set of the third plurality of sets of

color values, and said adjusting of the corresponding set.

Dalrymple'016 teaches repeating said performance of systematic area analyses, said computing

of a corresponding set of the third plurality of sets of color values, and said adjusting of the ·

corresponding set for at least one other lightness level (the method of the invention obtains final

output CMYK signals by linear interpolation of the values retrieved from the 3 LUT's. paragraph

0083 It is clear that the example given in the specification was related to a single example and

the method would have to be repeated to determine CMYK signals that would be usable by a

printer, paragraph 0079).

Having a system of Linder'545 reference and then given the well-established teaching of

Dalrymple'016 reference, it would have been obvious to one having ordinary skill in the art at

the time the invention was made to modify the system of Linder'545 reference as taught by

Dalrymple'016 reference, since Dalrymple'016 reference suggested achieving optimal output

image quality, paragraph 007.

Regarding claim 36, Linder'545 fails to teach, wherein the programming instructions are further

designed to enable the apparatus to compute the third plurality of sets of color values by

interpolation by performing a systematic area analysis at a lightness level òf the PCS to

determine an area of the measured near-neutral patch in the lightness level containing a neutral

node of the lightness level, and compute a corresponding set of the third plurality of sets of color

values based at least in part on a weighted average of a fourth plurality of sets of color values in

the imaging system's color space corresponding to plurality of nodes in the PCS defining the area

in the lightness level containing the neutral node of the lightness level.

Dalrymple'016 teaches computing of the third plurality of sets of color values (final CMYK

signals, paragraph 0085) by interpolation (interpolation process, paragraph 0083) comprises

performing a systematic area analysis (enclosing tetrahedron may be determined, paragraph

0083) at a lightness level of the PCS to determine an area of the measured near-neutral patch in

the lightness level containing a neutral node of the lightness level (the three edged that connect

white, a primary color, and an adjacent secondary color, to black on it enclosing tetrahedron,

paragraph 83, in addition, Fig. 6), and computing a corresponding set of the third plurality of sets

of color values (final CMYK signals, paragraph 0083) based at least in part on a weighted

average (weighting factors, paragraph 083) of a fourth plurality of sets of color values in the

imaging system's color space (input CMY signals, paragraph 0083) corresponding to plurality of

nodes in the PCS (Points C, S, and P, Fig. 7 and in addition paragraph 0083) defining the area in

the lightness level containing the neutral node of the lightness level (points C, P, and S for a

section through a specific tetrahedron, which section is defined as a function of the input signal

set, paragraph 0083).

Having a system of Linder'545 reference and then given the well-established teaching of

Dalrymple'016 reference, it would have been obvious to one having ordinary skill in the art at

the time the invention was made to modify the system of Linder'545 reference as taught by

Dalrymple'016 reference, since Dalrymple'016 reference suggested achieving optimal output
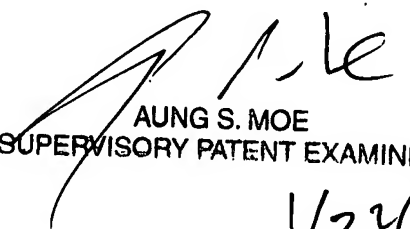
image quality, paragraph 007.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence E. Wills whose telephone number is 571-270-3145. The examiner can normally be reached on Monday-Friday 7:30 AM - 4:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Aung Moe can be reached on 571-272-7314. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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1/24/08